

ONSHORE OIL & GAS ORDER NO. 1

Approval of Operations on Onshore  
Federal and Indian Oil & Gas Leases

MASTER FIELD PERMIT  
*BROWN COW POD*  
Sections 1, 2, 12 and 13  
T14N - R91W  
Carbon County, Wyoming

Prepared For:

MERIT ENERGY COMPANY

By:

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Copies Sent To:

- 3 - BLM - Rawlins, WY
- 1 - Wyoming Oil & Gas Commission - Casper, WY
- 2 - Merit Energy Company - Dallas, TX
- 1 - Merit Energy Company - Baggs, WY

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All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (CFR 43, Part 3160) and the approved Application for Permit to Drill. All operations will be conducted in accordance with Onshore Order No. 2. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling and completion operations.

Merit Energy Company proposes to drill a total of 12 wells within the Brown Cow POD which is located in T14N - 91W, approximately 8 miles north of Baggs, Wyoming, on the east side of Highway 789.

All wells are encompassed by two federal leases.

**1. FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

<i>Formation</i>	<i>Depth</i>
Lewis Shale	Surface
Mesa Verde	645' – 1045'
Garden Gulch	649' – 1049'
A Series	904' – 1304'
Cow Creek	1043' – 1443'
Robertson	1106' – 1506'
Allen Ridge	1335' – 1735'
T.D.	1425' – 1825'

**2. ANTICIPATED DEPTHS OF OIL, GAS, COAL AND OTHER MINERALS BEARING ZONES**

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The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

<i>Substance</i>	<i>Formation</i>	<i>Depth</i>
Fresh Water	Mesa Verde	0-T.D.
Coalbed Methane/Fresh Water	Mesa Verde	645'-T.D.

The Lewis Shale is not anticipated to contain any zones capable of producing water. There are several zones within the Mesa Verde capable of producing fresh water, including the coal seams. Several coal seams may be tested for gas producing formations to total depth. Any shallow water zones encountered will be protected by bringing production casing and cement to surface.

**3. MINIMUM BLOW OUT PREVENTOR (BOP) REQUIREMENTS** - refer to attached BOP Schematics

- a. The BOPE shall be closed whenever the well is unattended.
- b. The BOPE shall be pressure tested when initially installed, whenever any seal subject to pressure testing is broken, after repairs, or every 30 days.
- c. Merit shall notify the Rawlins BLM office 24 hours in advance of BOPE tests.
- d. BOP's will be tested to 1000 psi.

**4. CASING AND CEMENTING PROGRAM**

- a. The operator proposes to test the potential of the Mesa Verde coals between +/- 645' and +/-1045' (or the total depth for methane production). A 12-1/2" hole will be drilled to 300 feet and 9-5/8", 32.3#, H-40 casing will be set. An 8-3/4" production hole will be drilled from surface to total depth and then 7", 20#, J-55 casing will be set. All casing will be new.

<i>Purpose</i>	<i>Interval</i>	<i>Hole Size</i>	<i>Casing Size</i>	<i>Weight</i>	<i>Grade</i>	<i>Type</i>	<i>New/Used</i>
Surface	0' to 300'	12-1/4"	9-5/8"	32.3#	H-40	ST&C	New

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<i>Purpose</i>	<i>Interval</i>	<i>Hole Size</i>	<i>Casing Size</i>	<i>Weight</i>	<i>Grade</i>	<i>Type</i>	<i>New/Used</i>
Production	0-T.D.	9-7/8"	7"	20#	J-55	LT&C	New

- b. The proposed casing and cementing program shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. All indications of usable water shall be reported.
- c. All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.
- d. The surface casing will have centralizers on the bottom 3 joints of the casing, starting with the shoe joint.
- e. The cement program will be as follows:

<i>Surface (9-5/8")</i>	<i>Type and Amount</i>
0' – 300' Top Of Cement @ Surface	Lead: Cement with approximately 158 sx, Class AG® with 2% CaCl <sub>2</sub> , 0.25 pps Flocele. Yield: 1.15 cubic feet/sk. Weight: 13.0 ppg.
<i>Production (7")</i>	<i>Type and Amount</i>
0' – T.D. Top Of Cement @ Surface	Cement with approximately 250 sx Midcon II with 6% Salt, 2% Calseal, 2% EX1, 0.30% Versaset, 0.25 pps Flocele, 0.25 pps Kwik Seal. Yield 1.58 cubic feet per sack. Weight: 14.2 ppg.

- f. The surface casing shall be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface.
- g. The above cement volumes are approximate and are calculated under the assumption that a gauge hole will be achieved. Actual cement volumes may vary due to variations in the actual hole gauge and will be determined by running a caliper log on the drilled hole.
- h. Auxiliary equipment to be used is as follows:
  - 1. Kelly cock

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2. Bit float if deemed necessary.

## 5. MUD PROGRAM

- a. The proposed circulating mediums to be employed in drilling are as follows:

<i>Interval</i>	<i>Mud Type</i>	<i>Mud Wt.</i>	<i>Visc.</i>	<i>F/L</i>
0 – 300'	Gel/Lime/Barite as needed	9-13 ppg	30-45	N/C
300' to T.D.	LSND/PHPA	9.2	38	<10 cc's

- b. Visual monitoring from surface to T.D. The mud material will consist of bentonite, polymer, and drilling soap. Sufficient quantities of lost circulation material and barite will be available at the well site at all times for the purpose of assuring well control.

## 6. TESTING, LOGGING AND CORING

The anticipated type and amount of testing, logging and coring are as follows:

- a. No drill stem tests are anticipated.
- b. The logging program will consist of the following:
  - Induction, GR, SP, Density, Neutron and Caliper - from surface to T.D.
  - Cement Bond Log - From 9-5/8" casing shoe to T.D.
  - Mud Logger - As needed.

## 7. ABNORMAL PRESSURES AND HYDROGEN SULFIDE GAS

- a. The expected bottom hole pressure is 1000-1100 psi. Normal pressures are anticipated to T.D.
- b. There is no history of hydrogen sulfide gas in the area and none is anticipated.

## 8. OTHER INFORMATION AND NOTIFICATION REQUIREMENTS

- a. Anticipated Starting Dates:

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Anticipated Commencement Date:	- October 15, 2003, or upon approval
Drilling Days:	- Approximately 6 Days Per Well
Completion Days:	- Approximately 4 Days Per Well
Testing Days:	- Approximately 5 Days Per Well

b. The following shall be entered on the driller's log:

1. Casing run, including size, grade, weight, and depth set;
2. How the pipe was cemented, including amount of cement, type, whether cement circulated, location of the cementing tools, etc.
3. Waiting on cement time for each casing string.
4. Casing pressure tests after cementing, including test pressures and results.

c. Notifications Requirements:

1. The spud date will be reported orally to the Authorized Officer 24 HOURS BEFORE SPUDDING, unless otherwise required in the site-specific conditions of approval.
2. Verbal notification shall be given to the Authorized Officer at least 24 hours before formation tests, BOP tests, running and cementing casing, and drilling over lease expiration dates.
3. A phone contact list will be provided by the Bureau of Land Management with the Conditions of Approval.